REMARKS

By the above amendment, informalities in the specification, including those noted by the Examiner have been corrected. More particularly, clarification has been provided with respect to the prior art documents and the Brief Description of the Drawings has been amended to correspond to the illustrated figures. Additionally, claims 1 - 10 have been canceled without prejudice or disclaimer of the subject matter thereof with new claims 11 - 26 being presented.

With regard to the objection to the drawings, submitted herewith is a proposed drawing correction of Fig. 2A and 3A and replacement sheets therefor are also submitted noting that reference characters 11A, 11B, 12A and 12B have been properly illustrated. Thus, applicants submit that the drawing objection should now be overcome and acceptance of the drawings is respectfully requested.

As to the rejection of claims 1, 4, 6 and 9 under 35 USC 103(a) as being unpatentable over Fukuda (JP 9-17770-A) in view or Arasawa et al (US RE36,810); the rejection of claims 2 and 7 under 35 USC 103(a) as being unpatentable over Fukuda (JP 9-17770-A) in view of Arasawa et al (US RE36,810), and Sugano et al (JP 2000-216140-A); and the rejection of claims 3, 5, 8 and 10 under 35 USC 103(a) as being unpatentable over Fukuda (JP 9-17770-A) in view of Arasawa et al (US RE36,810), further in view of Sugano et al (JP 2000-216140-A) and Lue et al (US 5,761,023), such rejections are considered to be obviated by the cancellation of claims 1 - 10 and the presentation of new claims 11 - 26. Furthermore, insofar as the rejections are applicable to the present claims, such rejections are traversed and reconsideration and withdrawal of the rejections are respectfully requested.

With regard to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988),

wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

> The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Before discussing the cited art, applicants note that each of newly presented independent claims 11 and 19 are directed to a plasma processing method for processing a specimen placed on a specimen table disposed inside of a processing chamber using plasma generated therein, wherein the specimen has plural layers of different films, with claim 19 being directed to processing one by one of a plurality of such specimens. The present invention intends to improve temperature controllability in the processing of the specimen so as to improve the throughput thereof. Thus, the claimed invention as set forth in both independent claims 11 and 19 include the steps of placing a specimen on the specimen table after respectively adjusting one of a temperature in a central portion of the specimen table and a temperature in an outer circumferential portion of the specimen table to predetermined values and a difference between a temperature in a central portion of the specimen table and a temperature in an outer circumferential portion of a specimen table to a predetermined value; providing a heat conducting gas between at least one space between a rear side of the specimen and an upper surface of the specimen table and further generating a plasma inside the processing chamber and starting the processing for at least one layer of the films of the specimen. Claim 11, further recites the features of changing one of pressures of the heat conducting gas in a central space and a circumferential space between the rear side of the specimen and the upper surface of the specimen table to predetermined values and a difference between pressures of the conducting gas in a central space and a circumferential space between the rear side of the specimen and the upper surfaces of the specimen table to a predetermined value, after the previous step, and generating the plasma inside the processing chamber, and further restarting the processing of the specimen. Independent claim 19 further recites the features of

placing a second specimen on the specimen table after processing the first specimen, and further providing the heat conducting gas and changing one of the pressures of the heat conducting gas in a central space and a circumferential space between the rear side of the second specimen and the upper surface of the specimen table to respective predetermined values and pressures of the heat conducting gas in a central space and a difference between pressures of the heat conducting gas in a central space and a circumferential space between the rear side of the second specimen and the upper surface of the specimen table to a predetermined value, and generating the plasma inside of the processing chamber, and further starting the processing of the second specimen.

With the features of the present invention as described above, the distribution of the temperature at the rear side of the specimen can be changed rapidly by combining the adjustment for the temperature inside the specimen table with the adjustment for the pressure of the gas between the specimen table and rear side of the specimen. As such, these features enable providing a desired temperature distribution which may be non uniform, for example, on the upper surface of the specimen, in a shorter period of time and improving the throughput in the processing of the specimen.

Irrespective of the position set forth by the Examiner, none of the cited art described the features of the specimen having plural layers of different films and processing of at least one layer of the films nor the features as recited in the independent and dependent claims of this application. It is noted that Fukuda et al is directed to providing a uniform surface temperature distribution on the wafer and does not disclose or teach adjusting a temperature in a central portion of the specimen table and a temperature in an outer circumferential portion of the

specimen table in the manner defined, together with providing a heat conducting gas between at least one space between a rear side of the specimen and an upper surface of the specimen table and generating the plasma so as to start the processing for at least one layer of the films of the specimen and changing pressures in the manner defined and thereafter generating the plasma and restarting the processing of the specimen. Furthermore, it is apparent that Fukuda et al does not change specimens and perform processing in the manner set forth in independent claim 19. As such, applicants submit that independent claims 11 and 19 patentably distinguish over Fukuda in the sense of 35 USC 103 and the independent and dependent claims should be considered allowable thereover.

As to the combination of Fukuda et al with Arasawa et al, Sugano et al and/or Lue et al, such references also fail to disclose or teach claimed features in the sense of 35 USC 103.

For example, as described in Arasawa et al and Lue et al, it has been known to make the pressure of the gas provided to a space between the upper surface of the specimen table and the rear side of the specimen different between the central portion and the outer circumferential portion of the specimen table, thereby forming the distribution in the temperature on the surface of the specimen. Furthermore, it is also disclosed to form a temperature distribution to the central portion and the outer circumferential portion of the upper surface of the specimen table thereby forming the temperature distribution on the surface of the specimen by a heat exchanging medium flowing through the chamber disposed inside the specimen table at the central portion and the outer circumferential portion thereof, as disclosed in Sugano et al and Fukuda et al. However, among the aforementioned cited art, the technique of adjusting the pressure of the heat conducting gas involves a problem that no

stable distribution of the temperature on the surface of the specimen is formed unless the plasma is formed and stabilized. That is, from just after the formation of plasma and the starting of the processing for the specimen to the initial stage, no intended distribution for the temperature of the surface of the specimen can be obtained. Accordingly, the shape for the surface of the specimen formed by the processing conducting in the initial stage is not desirable. Therefore, the accuracy for the processing in this period is lower. Particularly, it has been found in recent years, in which the time of processing has been decreased, no intended performances can be obtained for semiconductor devices obtained as a result of processing and the processing yield is deteriorated greatly.

Therefore, while it has been considered to adjust temperature of the specimen through heat exchange by a medium flowing through the channel inside the specimen table, when a distribution is provided to the outside and inside of the temperature for the specimen table previously, it is possible to form a temperature distribution to the surface of the specimen in a state where it is placed on the specimen table and then form the plasma and thereby start the processing for the specimen. However, such requires a longer time for change of temperature than that obtained by the heat conducting gas and accordingly, in a case of changing distribution of the temperature for the specimen table, the processing has to be interrupted or it takes a longer time until the start of the processing which deteriorates the throughput in the processing.

In accordance with present invention, upon starting of the processing, the temperature of the specimen table is previously formed while being adjusted so as to provide a predetermined distribution between the central portion and the outer circumferential portion, thereby forming a necessary distribution for the specimen in

this processing, and where a temperature distribution different from the basic temperature distribution is required to be performed in the subsequent processing, the different temperature distribution is formed by changing the pressure of the heat conducting gas between the central portion and the outer circumferential portion of the specimen table, so as to form the different temperature distribution. In this manner, the time necessary for plural temperature distributions which cause a problem in the prior art can be reduced to enable an increase of the throughput in the processing of the specimen and the processing accuracy can be kept high, whereby improvement is obtained in temperature controllability and the throughput in the processing.

As is apparent, none of the cited art considers the improvement of the processing accuracy and the time required for formation is shortened to improve throughput by effecting control in the manner disclosed and claimed herein. Particularly, in the case where distribution of the temperature is different between the central portion and the outer circumferential portion of the specimen between each plural processing, none of the patents disclose or suggest the change thereof in a short time so as to improve the throughput. More particularly, Arasawa et al and Lue et al, as well as the other cited art are intended to make the temperature on the surface of the specimen uniform and both Arasawa et al and Lue et al eliminate such temperature difference by controlling the pressure of the heat conducting gas therefore, these references do not consider forming a temperature difference to the specimen upon starting the processing for the specimen and provide no consideration for previously forming the temperature distribution to the specimen table. Additionally, Sugano et al and Fukuda et al involve the problem that a longer time is required for changing the distribution of the temperature by change of the

temperature of the specimen table so that processing is interrupted for a long time in the case of changing conditions for processing, to thereby lower throughput. Thus, applicants submit that independent claims 11 and 19 recite the features not disclosed or taught in the cited art taken alone or in any combination thereof and such claims should be considered allowable thereover.

With respect to the dependent claims, applicants note that the dependent claims recite further features of the present invention including changing the pressures of the heat conducting gas while the temperature in the central portion and outer circumferential portion of the specimen table is maintained and that the pressures or temperatures are adjusted on the basis of information obtained in advance before the processing of the specimen is started, which features, when considered in conjunction with independent claims are not disclosed or taught in the cited art. Thus, the dependent claims recite further features which patentbly distinguish over the cited art and should be considered allowable thereover.

In view of the above amendments and remarks, applicants request favorable action in this application.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.42565CX1), and please credit any excess fees to such deposit account.

Respectfully submitted,

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Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 2A and 2B and 3A. These sheets, which include Figs. 2A, 2B and 3A, replaces the original sheets including Figs. 2A, 2B and 3A, in which reference characters 11A, 11B and 12A have been corrected.

Attachment: Replacement Sheets
Annotated Sheets

FIG. 2A

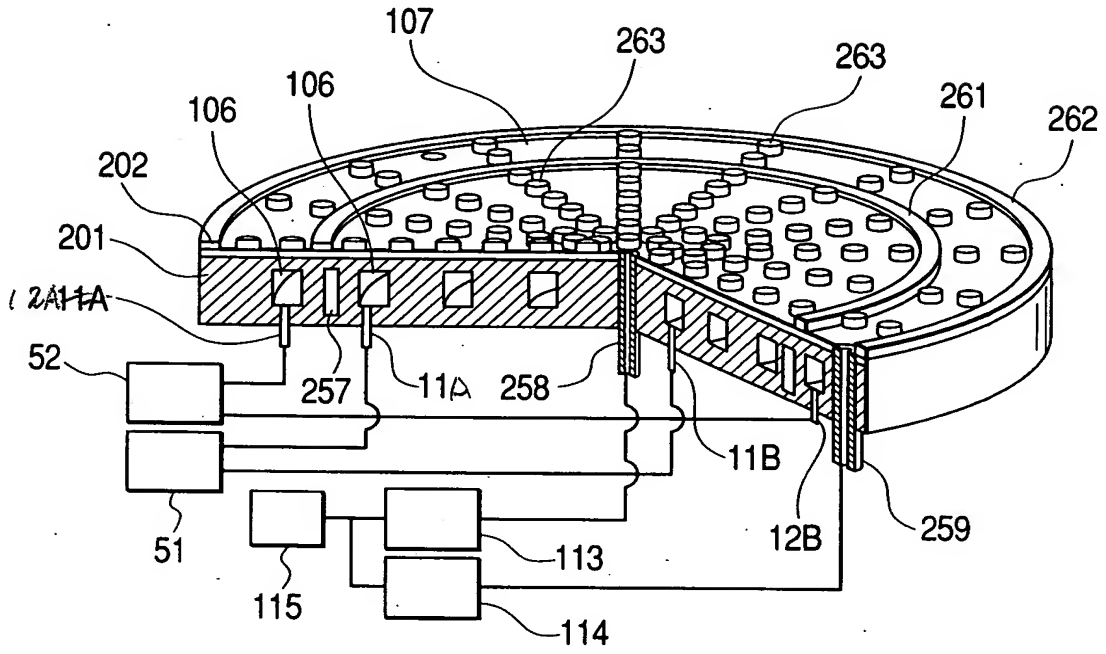

FIG. 2B

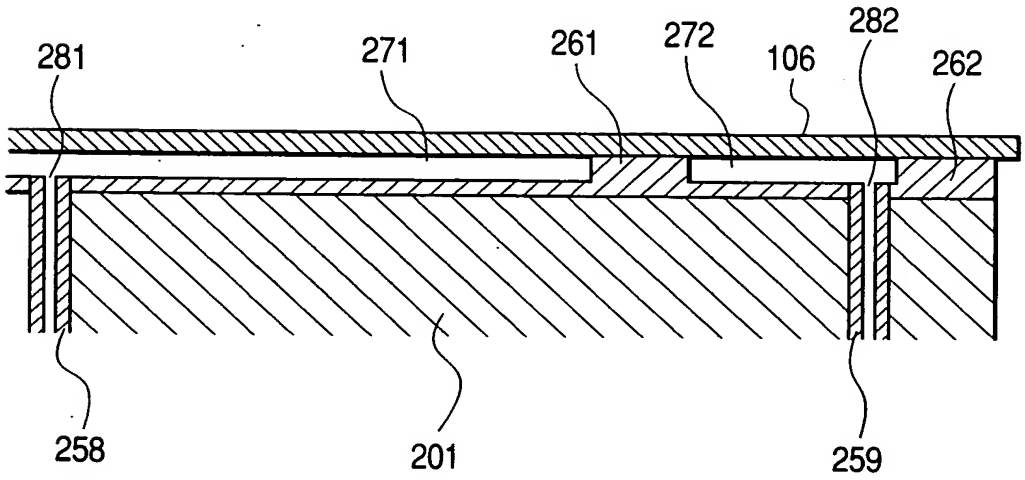

FIG. 3A